CLAIMS

What is claimed is:

1. A method for synchronizing a timing of multiple fixed wireless Access Points and/or Synchronization Units in a network communicating under an Ethernet-related protocol, comprising the steps of: (a) arranging a cable comprising at least four pairs of twisted wires connected between an Ethernet LAN and a plurality of fixed Access Points (AP) and/or Synchronization Units (SU) in a network; (b) assigning a first pair of the at least four pairs of twisted wire to carry a positive D.C. rail voltage to at least one (AP) or (SU), and assigning a second pair of the least four pairs of twisted wire to carry a negative D.C. rail voltage to said at least one (AP) or (SU); (c) providing to at least one pair of the first and second pairs of twisted wires a series of synchronization pulses generated from a synchronization source and capacitively-coupled to the said at least one pair of twisted wires so as to supply a composite signal to a first end of said at least one pair of twisted wires; and (d) reconstructing the generated synchronization pulses by detecting pulses on the positive and negative D.C. voltage rails at a second end of said at least one pair of twisted wires by said at least one (AP) or (SU).

2. The method according to claim 1, wherein each wire of the respective first and second pairs are connected together by one of a connector and a physical connection of the respective pair.

3. The method according to claim 1, wherein the LAN powering scheme comprises that described in one of draft standard IEEE P802.3AF.

4. The method according to claim 1 operating in a TDMA system, wherein each (AP) communicates with multiple portable wireless devices, and in which portable wireless devices can associate with multiple (APs) in sequence, handing off between them.

5. The method according to claim 4, wherein said each (AP) communicates with multiple portable devices in a WMTS (Wireless Medical Telemetry System).

6. The method according to claim 2, further comprising connecting the cable to the (AP) or (SU) via an RJ-45 connector.

7. The method according to claim 1, wherein the positive D.C. rail voltage is applied to pins 4 and 5 of the RJ-45 connector.

8. The method according to claim 1, wherein the negative D.C. rail voltage is applied to pins 7 and 8 of the RJ-45 connector.

9. The method according to claim 1, further comprising that a third pair of the least four pairs of twisted wire carries data to the (APs).

10. The method according to claim 9, further comprising that a fourth pair of the at least four pairs of twisted wire carries data from the (APs).

11. The method according to claim 1, wherein the network includes more than one synchronization unit (SU), and wherein the synchronization source comprises a master (SU) that designates additional (SUs) in the network as slave (SUs) that receive the synchronization pulses from the master (SU).

12. A Wireless Medical Telemetry System (WMTS) synchronizing unit for synchronizing the timing of multiple Access Points of a WLAN, comprising: a receiving unit for receiving an external timing signal; a line receiver having input sockets being adapted for receiving a cable comprising at least four pairs of wires from a master synchronizing unit when the WMTS unit has been designated as a slave unit, wherein two pairs of said at least four pairs of wire contain synchronization pulses from the master synchronizing unit; a power module adapted for receiving a rail voltage from a power hub and for providing predetermined voltage level outputs; a synchronization source unit for generating synchronization pulses when the WMTS unit has been a master synchronizing unit; and a plurality of synchronization pulse injection units for sending synchronization pulses and a rail voltage over a common two pairs of wires, wherein the synchronization pulses are capacitively coupled to the rail voltage on the common two pairs of wires.

13. The apparatus according to claim 12, wherein the sockets are adapted to receive RJ-45 connectors connected to Category 5 twisted wire cable.

14. The apparatus according to claim 12, wherein a field programmable gated array (FPGA), LED driver and a frequency locked loop control functionality in lieu of a processor or microprocessor.

15. The apparatus according to claim 12, further comprising a block of output connectors adapted for providing an output of data and synchronization pulses to one or more slave synchronization units.

16. The apparatus according to claim 12, further comprising a block of output connectors adapted for providing an output of data, a combination of the rail voltage and capacitively coupled synchronization pulses to a plurality of Access Points.

17. The apparatus according to claim 12, further comprising a master/slave selection switch.

18. The apparatus according to claim 12, further comprising a cable delay adjustment unit for compensating a length of cables used.

19. The apparatus according to claim 12, wherein the synchronization pulse injection units includes capacitive elements to couple the synchronization pulses to power cables 4,5, 7,8 that connected to the power rails.

20. The apparatus according to claim 15, wherein the output synchronization pulses comprises at least one of standard frame pulses, multiframe pulses that are not PSCN (Primary receiver Scan Carrier Number) synchronization pulses, and multiframe pulses that comprise PSCN synchronization pulses.

21. The apparatus according to claim 16, wherein the rail voltage continues to be output to the Access Points via the connectors after a failure of synchronization pulses occurs.

22. The apparatus according to claim 16, wherein the synchronization pulses are output only after a predetermined rail voltage has been detected.